

Loose Tool Falls, Causes Arc Flash Injury

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Burn Injury Narrative
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An electrician was working in a power distribution panel that contained two 500 amp circuit breakers. The panel covers had been removed for access. The line side of the panel was energized. The electrician was working on the load side of the breaker which was de-energized. He was not wearing any personal protective equipment except safety glasses. Suddenly a short circuit occurred that resulted in an arc flash/blast. He was knocked down by the blast and received first and second degree burns to his hands and face that required several days of hospitalization.

During a subsequent investigation, a small tool resembling an adapter for operating a socket with a drill was found lodged in a support for the breaker panel. The tool was damaged, indicating that it had been involved in the arc flash. The investigation report concluded that the tool likely fell through the panel and came in contact with the energized wires, causing the arc flash.

It is not known where the tool came from. One possibility is that it was left behind by a previous worker.



Injuries such as these may be prevented by taking the following steps:

- Schedule electrical work when the equipment can be shut down and de-energized.
- Establish an “electrically safe work condition” whenever possible. De-energize it, lock it out, ground it and test it. Turning off a breaker only de-energizes the load side. This does not create an “electrically safe work condition”.
- If work must be performed on energized equipment, it should be performed under an effective energized work policy meeting requirements in NFPA 70E, 130.1- 130.7, 2004.
- When working on or near energized equipment wear appropriate personal protective equipment; face shield, insulating gloves/sleeves and flame resistant clothing. Also use protective insulating shields/barriers between the worker and the energized parts. See NFPA 70E, 2004 for guidelines.
- Develop a written housekeeping policy. Ensure all workers are trained on the importance of good housekeeping practices. Schedule jobs to allow enough time at the end for clean up.
- Use insulated tools for electrical work.

Please consider the above information as you make safety decisions or recommendations for your company or constituency. The information in this narrative is based on preliminary data only and does not represent final determinations regarding the nature of the incident or conclusions regarding the cause of the injury.

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